

**Abstract**

The present invention relates to a method for separating a mixture of hydrocarbons into fractions enriched in linear, mono-branched, or multi-branched hydrocarbons. In particular, 5 the present invention relates to a method of separating mono-branched alkanes from a mixture of alkanes containing multi-branched; mono-branched and linear alkanes, by selectively adsorbing said mono-branched alkanes on a zeolitic adsorbent. The zeolitic adsorbent MCM-22 is particularly suitable for carrying out the method according to the invention.